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SMITHSONIAN INSTITUTION

MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

Submitted as a supplement
to the FY 1979 budget

February, 1978

SMITHSONIAN INSTITUTION
MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

PROGRAM PURPOSES AND LIST OF GRANTS

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MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

PROGRAM PURPOSES AND LIST OF GRANTS

INTRODUCTION

The Smithsonian Institution's Special Foreign Currency Program makes grants in United States-owned foreign currencies to United States institutions, including the Smithsonian itself, to conduct research projects in the so-called "excess" foreign currency countries. In FY 1977 the "excess" foreign currency countries were Burma, Egypt, Guinea, India, Pakistan, Poland, and Tunisia. Poland and Tunisia are no longer included in FY 1978. The Smithsonian program supports research in Archaeology and Related Disciplines, Systematic and Environmental Biology, Astrophysics and Earth Sciences, and Museum Programs.

The Smithsonian Foreign Currency Program awards grants when applicants have fulfilled three requirements. These are: 1) the favorable recommendation by a national advisory council of qualified scholars; 2) the concurrence of the appropriate American embassy and host government overseas; and 3) the completion of appropriate cooperative arrangements with host country institutions.

This supplement to the Institution's FY 1979 appropriation request describes: 1) the Smithsonian Foreign Currency Program within the context of the basic Smithsonian purpose; 2) some of the Program's achievements; 3) its goals for FY 1979; and 4) projects for which obligations were incurred during FY 1977.

THE GLOBAL NATURE OF THE SMITHSONIAN'S CHARTER

The purpose of the Smithsonian Institution is "the increase and diffusion of knowledge among men." This quotation from the will of its founder, James Smithson, was made a part of the Institution's enabling legislation enacted by the Congress in 1846, chartering the Institution and leading to the eventual designation of the Institution as the custodian of the national collections.

The Smithsonian's first Secretary, Joseph Henry, implemented the charter through support of basic research and publication not only in Washington but through a global network of correspondents devoted to these same ends. At the same time, the Institution began to acquire substantial collections of biological and geological specimens and of archeological and ethnographic materials, derived both from its own research and from U.S. Government programs. The Institution continues to conduct research and education programs and to improve its collections. Today the Institution is acknowledged to be a major national resource for the study of natural and cultural history and to be without equal anywhere on earth.

THE SMITHSONIAN FOREIGN CURRENCY PROGRAM

The purpose of the Smithsonian Foreign Currency Program is, like that of the Institution itself, "the increase and diffusion of knowledge among men." The Smithsonian Foreign Currency Program supports this purpose by making grants to United States univer-

sities, museums, and other institutions of higher learning, including the Smithsonian itself, primarily for research and advanced professional training in fields of traditional Smithsonian competence.

The Smithsonian program is the principal source of excess foreign currency support for research carried out by United States institutions in the excess currency countries. The Smithsonian program contrasts with other Special Foreign Currency Programs in that the full responsibility for the design, execution, and publication of research results rests with a scholar working within the program of a United States institution. The importance of this source of funds grows as inflation diminishes funds available from other sources for such research.

The Smithsonian program strengthens the research and training activities of collaborating institutions abroad as well, because most projects directly involve host country institutions and scholars. Enduring professional ties which result from such joint efforts and scholarly exchange contribute to the strongest form of United States cultural relations with other nations. Moreover, these ties contribute both directly and indirectly to the integration of the worldwide scientific process which serves to narrow the gap between the industrial and the developing nations.

THE IMPORTANCE OF RESEARCH IN THE NATURAL SCIENCES AND CULTURAL HISTORY

Research in the natural sciences and cultural history is important to understanding and managing a world where human population growth exceeds the increase in resources available to support that population.

In an era of rapid environmental change, grants awarded by the Smithsonian in systematic and environmental biology have contributed to the management of available natural resources. In FY 1977, grants supported the following projects of special interest in this connection.

- Texas Tech University is studying plants in Egypt which thrive in soils of high salinity. One objective is to identify those plants which could serve as a source of high protein forage for livestock.
- Four teams of paleobiologists from Howard and Yale Universities, the Smithsonian and the University of Michigan, working in collaboration with the Geological Survey of Pakistan, are contributing to the knowledge of the mineral resources of that country.

In astrophysics and the earth sciences, two Smithsonian projects in Egypt which are of special interest in the study of the Earth received support.

- The opening of an Egyptian satellite tracking facility at Helwan Observatory added a link to the Smithsonian Astrophysical Observatory's global studies of the earth's motion and magnetism and of the upper atmosphere. This situation employs Egyptian scientists and a Czechoslovak laser in an American program which has always provided for the free international exchange of data including exchange with the Soviet Union and Eastern European countries.
- A study of desert erosion and sand movement is testing data obtained from satellite photos against data being acquired by surface surveys.

Smithsonian grants in cultural history contribute to an understanding of man and society, past and present, and may contribute to better relations among increasingly interdependent nations. In FY 1977, grants supported the following projects of special interest in this connection:

- The University of California at Los Angeles translation of the best of Arabic writing today is providing the English-speaking world with new insights into Arabic culture.
- A Lehman College (City University of New York) study is analyzing the effects of resettlement and economic development in an Egyptian village.
- The American Schools of Oriental Research excavations in Tunisia of Punic and Roman Carthage is part of an international program which seeks to describe the nature and the fate of these ancient societies.

The special role of museum programs in acquainting one culture with another across language barriers was exemplified in FY 1977 by Smithsonian support for projects sponsored by the Museum Committee of the Indo-U.S. Subcommission on Education and Culture:

- The Franklin Institute is circulating in India an exhibit on the history of industrial technology in the United States.
- The Carnegie Museum of Natural History participated in an exchange of curators with the expanding Museum of Natural History in New Delhi.

BENEFITS TO UNITED STATES INSTITUTIONS

Since the inception of the program in FY 1966, Smithsonian grants have been made to 191 United States institutions in 31 states and the District of Columbia to support more than 480 individual projects. Publications known to have resulted from program grants totaled more than 1,000 at the end of FY 1977.

More than 100 research collections have been returned to United States universities and museums. A similar number of collections has been added to the research resources of the excess currency countries. These collections are the original biological specimens and the archeological and ethnographic materials acquired in the course of field research. They will remain available for further study and interpretation by other generations of scholars long after the research teams supported by the Smithsonian have dispersed and their conclusions have been published.

The benefits of the program have extended to a far larger number of institutions than the 191 mentioned above which were direct grant recipients. For example, three of the grantee institutions are consortia of United States scholarly institutions. They are the American Institute of Indian Studies (AIIS) in Chicago, Illinois, with 29 institutional members; the American Research Center in Egypt (ARCE) in Princeton, New Jersey, with 22 institutional and some 600 individual members; and the American Schools of Oriental Research (ASOR) in Cambridge, Massachusetts, with 135 member institutions, including three scholarly associations.

Smithsonian grants have supported the research in India of 186 AIIS fellows over the ten year period from FY 1968 through FY 1977. The fellows were drawn from some 43 United States institutions in 22 states. Program grants have also supported 39 ARCE projects over the twelve-year period from FY 1966 through FY 1977. Nine ASOR excavations in Israel and Tunisia over ten years have provided research opportunities for more than 260 senior U.S. scholars and field training for more than 324 graduate students.

THE FY 1979 APPROPRIATION REQUEST

For FY 1979, the Smithsonian requests an appropriation of \$3,700,000 equivalent in foreign currencies which have been determined by the Treasury Department to be in excess of the normal needs of the United States. This appropriation will be used to continue a program of grants to United States institutions for field research in those countries where excess local currencies are available. Of the total requested, \$2,800,000 will be available for one-year funding of continuing projects, \$400,000 will support new projects, and \$500,000 will provide multi-year funding of projects for which assurance of funding continuity is important.

THE IMPORTANCE OF MULTI-YEAR GRANTS

The FY 1979 appropriation request will allow increased multi-year funding of major programs. Rational planning by the United States grantee institution and by the host country collaborator involves the advance commitment of professors and graduate students, as well as facilities. The broad objectives of the participating institutions often depend on the coordination of such resources. Multi-year grants, with annual disbursements subject to a finding by the Smithsonian that satisfactory progress has been made, are essential to provide reasonable assurance of funding to these institutions.

The Smithsonian Foreign Currency Program appropriation has been sufficient in the past to provide funding only on an annual basis for most of its grantees even though approved proposals are frequently of a multi-year nature. Multi-year funding, the standard practice of other Special Foreign Currency Program agencies, has been undertaken by the Smithsonian primarily when it was essential to protect investments in successful projects against the possibility that some excess currency accounts would be exhausted. This happened in Poland and Tunisia in FY 1977.

EXPANDING CULTURAL PROGRAMS

Recent developments in United States' international, cultural and scientific relations have opened new areas for cooperative programs. These programs are amenable to support from the Smithsonian Foreign Currency Program. The Indo-U.S. Subcommissions on Education and Culture and on Science and Technology have established new priorities for exchanges and research. The Museum Committee of the Indo-U.S. Subcommission on Education and Culture, in particular, has developed a substantial program of curatorial and exhibits exchanges. Similarly, the U.S.-Egyptian Joint Working Group on Education and Culture is developing proposals for mutually beneficial museum exchanges. In addition, a newly-organized American Institute of Pakistan Studies will encourage research by American scholars in a broad range of disciplines.

SCIENTIFIC REVIEW UNDER THE SMITHSONIAN PROGRAM

The Smithsonian's Special Foreign Currency Program provides a mechanism for American private sector institutions, such as universities, to make use of excess foreign currencies for the support of their own research program.

The Smithsonian program considers proposals from any qualified United States institution for research in fields of traditional Smithsonian competence. The program seeks the advice of experts in the specific area of science to be studied and convenes annual advisory councils of senior scholars from across the nation in the relevant program areas. The councils discuss and evaluate the proposals, taking into consideration the experts' opinions, and provide specific advice to the Smithsonian regarding the selection of projects for support and the priority among proposals recommended for support.

Foreign currency awards to other institutions are executed as normal Federal contracts, with the American grantee institutions providing for full fiscal accountability. The Smithsonian audits each grantee's periodic financial reports and, where grantees maintain records abroad, conducts site audits to ensure that appropriate accounting procedures are followed.

Projects lasting more than one year are subject to annual review of scientific progress by the advisory councils before another year of funding is approved. In addition, Smithsonian staff scientists and program advisory council members visit projects in the field when firsthand scientific reports are considered necessary. Smithsonian policy requires that grantees publish scientific results and that scientific collections be readily accessible to the scholarly community.

THE IMPORTANCE TO SMITHSONIAN EMPLOYEES OF AWARDS FOR NEW RESEARCH

Basic research has been one of the primary functions of the Smithsonian since its establishment in 1846. Smithsonian scholars have traditionally competed with their peers in museums and universities for grants from private and governmental sources in order to conduct their own research. Access to funds for independent research is an essential factor in enabling the Smithsonian to attract and retain leading researchers and thus to maintain a standard of excellence as a research institution. In this context, the Institution's initial request in FY 1966 for an appropriation of excess foreign currencies (initiated at the recommendation of the Department of State because of the recognized competence of the Institution in archeology) made it clear that Smithsonian scholars would compete for these funds. The appropriation justification in that year stated that the Institution would "...award and administer foreign currency grants...for maximum benefit of all participating institutions, as well as the Smithsonian." This appropriation has provided Smithsonian scientists an opportunity to pursue new and innovative research. The conduct of such research is considered a basic job requirement and career advancement is directly tied to the quality of the results.

Under the Special Foreign Currency Program guidelines, Smithsonian proposals are reviewed by the same councils of distinguished scholars from across the nation as are proposals from other institutions. Furthermore, continuing projects are subject to annual reviews. These processes are described above in the section entitled "Scientific Review Under the Smithsonian Program." Smithsonian Foreign Currency Program awards to

Smithsonian employees, as to other scholars around the country, often involve participants from other organizations and universities as collaborators. No Smithsonian employee nor any other grantee receives personal compensation duplicating or supplementing his salary. Program awards cover only field research costs in the excess currency country and international travel to the country.

Foreign Currency Program awards to Smithsonian employees are executed as normal federal allotments to the individual bureaus of the Institution for the support of approved employee research projects. Such funds are expended in accordance with federal procurement and personnel regulations. No new funds have been allocated to the Smithsonian Research Foundation since the summer of 1977 and prior awards to the Foundation are being withdrawn and allocated to the bureau of the principal investigator for his approved project.

SPECIAL FOREIGN CURRENCY PROGRAM APPROPRIATIONS AND THE U.S. TAXPAYER

An appropriation for this program does not add to the tax burden of Americans because the money used for foreign currency grants comes from U.S. holdings of foreign currencies abroad in existing accounts that were established in connection with the "Food for Peace" (PL. 480) program. These accounts were generated largely through sales of surplus U.S. agricultural commodities abroad in exchange for local currencies. In cases where these are greatly in excess of the projected normal U.S. needs, the Treasury Department designated them "excess foreign currencies." They then become available through the Special Foreign Currency Program appropriation process for U.S. uses like scientific research.

Erosion of these accounts by inflation is in many countries dramatically reducing their value to the United States. Indian and Pakistani rupees have, for example, lost almost half their value since 1970. As a consequence, when a worthy use of these excess currencies can be identified through programs like the Smithsonian Foreign Currency Program, the U.S. can effectively employ at least some of these currencies before inflation effectively eliminates their usefulness.

SMITHSONIAN INSTITUTION
MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

SUMMARY OF OBLIGATIONS, ACTUAL AND ESTIMATED
FY 1977, FY 1978, and FY 1979

Obligations of Funds by Program Area
(dollar equivalents)

| | <u>FY 1977</u> <u>Actual</u> | <u>FY 1978</u> <u>Estimate</u> | <u>FY 1979</u> <u>Estimate</u> |
|--|---------------------------------|-----------------------------------|-----------------------------------|
| Archeology and Related Disciplines | \$2,588,000 ^{/1} | \$2,873,000 ^{/1} | \$2,139,000 |
| Systematic and Environmental Biology | 603,000 | 455,000 | 618,000 |
| Astrophysics and Earth Sciences | 299,000 | 336,000 | 640,000 |
| Museum Programs | 226,000 | 139,000 | 140,000 |
| SFCP Grant Administration ^{/2} | 70,000 | 85,000 | 20,000 |
| National Science Foundation-- Science Information Program (Translations) | <u>0</u> | <u>381,000</u> | <u>150,000</u> |
| TOTAL | \$3,786,000 | \$4,269,000 | \$3,707,000 |

Obligations of Funds by Country
(dollar equivalents)

| | <u>FY 1977</u> <u>Actual</u> | <u>FY 1978</u> <u>Estimate</u> | <u>FY 1979</u> <u>Estimate</u> |
|----------|---------------------------------|-----------------------------------|-----------------------------------|
| Burma | \$ 1,000 | \$ 5,000 | \$ 5,000 |
| Egypt | 1,943,000 ^{/1} | 2,279,000 ^{/1} | 1,676,000 |
| Guinea | 0 | 18,000 | 18,000 |
| India | 697,000 ^{/2} | 1,549,000 ^{/2/3} | 1,328,000 ^{/2/3} |
| Pakistan | 84,000 | 418,000 | 680,000 |
| Poland | 315,000 | 0 | 0 |
| Tunisia | <u>746,000</u> | <u>0</u> | <u>0</u> |
| TOTAL | \$3,786,000 | \$4,269,000 | \$3,707,000 |

^{/1} FY 1977 and FY 1978 amounts include respectively the third and fourth of four annual payments, each of \$1,000,000 equivalent in excess Egyptian pounds, which together constitute the United States contribution to the project to save the Temples of Philae.

^{/2} Includes transfers to the State Department for "Shared Administrative Expenses."

^{/3} Includes \$381,000 equivalent (FY 1978) and \$150,000 equivalent (FY 1979) to be obligated by the NSF Science Information Program for translations.

MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

FISCAL YEAR 1977 - ACTUAL OBLIGATIONS

Actual Obligations by Program Area
(dollar equivalents)

| | <u>Research Projects</u> ^{/1} | <u>Research Development</u> ^{/1} | <u>Total</u> |
|---|--|---|----------------|
| Archeology and Related Disciplines | \$2,560,000 ^{/2} | \$28,000 | \$2,588,000 |
| Systematic and Environmental Biology | 585,000 | 18,000 | 603,000 |
| Astrophysics and Earth Sciences | 289,000 | 10,000 | 299,000 |
| Museum Programs | <u>217,000</u> | <u>9,000</u> | <u>226,000</u> |
| TOTAL FOR RESEARCH | \$3,651,000 | \$65,000 | \$3,716,000 |
| SFCP Grant Administration ^{/3} | | | <u>70,000</u> |
| TOTAL | | | \$3,786,000 |

Actual Obligations by Country
(dollar equivalents)

| | <u>Grant Administration and Agency Transfers</u> | <u>Research Projects</u> | <u>Research Development</u> | <u>Total</u> |
|----------|--|------------------------------|---------------------------------|----------------|
| Burma | \$ 0 | \$ 0 | \$ 1,000 | \$ 1,000 |
| Egypt | 4,000 | 1,919,000 ^{/2} | 20,000 | 1,943,000 |
| India | 11,000 | 653,000 | 33,000 | 697,000 |
| Pakistan | 0 | 75,000 | 9,000 | 84,000 |
| Poland | 55,000 | 260,000 | 0 | 315,000 |
| Tunisia | <u>0</u> | <u>744,000</u> | <u>2,000</u> | <u>746,000</u> |
| TOTAL | \$70,000 | \$3,651,000 | \$65,000 | \$3,786,000 |

^{/1} These projects are described in the Grants List which follows.

^{/2} Includes the third of four annual payments, each of \$1,000,000 equivalent in excess Egyptian pounds, which together constitute the United States contribution to the project to save the Temples of Philae.

^{/3} Includes transfers to the State Department for "Shared Administrative Expenses."

MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

FISCAL YEAR 1978 - ESTIMATED OBLIGATIONS

Estimated Obligations by Program Area
(dollar equivalents)

| | <u>Research Projects</u> | <u>Research Development</u> | <u>Total</u> |
|---|------------------------------|---------------------------------|----------------|
| Archeology and Related Disciplines | \$2,828,000 ^{/1} | \$45,000 | \$2,873,000 |
| Systematic and Environmental Biology | 425,000 | 30,000 | 455,000 |
| Astrophysics and Earth Sciences | 331,000 | 5,000 | 336,000 |
| Museum Programs | <u>136,000</u> | <u>3,000</u> | <u>139,000</u> |
| TOTAL FOR RESEARCH | \$3,720,000 | \$83,000 | \$3,803,000 |
| SFCP Grant Administration ^{/2} | | | 85,000 |
| NSF Science Information Program-- Translations | | | <u>381,000</u> |
| TOTAL | | | \$4,269,000 |

Estimated Obligations by Country
(dollar equivalents)

| | <u>Grant Administration and Agency Transfers</u> | <u>Research Projects</u> | <u>Research Development</u> | <u>Total</u> |
|----------|--|------------------------------|---------------------------------|----------------|
| Burma | \$ 0 | \$ 0 | \$ 5,000 | \$ 5,000 |
| Egypt | 0 | 2,249,000 ^{/1} | 30,000 | 2,279,000 |
| Guinea | 0 | 15,000 | 3,000 | 18,000 |
| India | 466,000 | 1,058,000 | 25,000 | 1,549,000 |
| Pakistan | <u>0</u> | <u>398,000</u> | <u>20,000</u> | <u>418,000</u> |
| TOTAL | \$466,000 | \$3,720,000 | \$83,000 | \$4,269,000 |

^{/1} Includes the fourth of four annual payments, each of \$1,000,000 equivalent in excess Egyptian pounds, which together constitute the United States contribution to the project to save the Temples of Philae.

^{/2} Includes transfers to the State Department for "Shared Administrative Expenses."

MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

FISCAL YEAR 1979 - ESTIMATED OBLIGATIONS

Estimated Obligations by Program Area
(dollar equivalents)

| | <u>Research Projects</u> | <u>Research Development</u> | <u>Total</u> |
|---|------------------------------|---------------------------------|----------------|
| Archeology and Related Disciplines | \$2,090,000 | \$49,000 | \$2,139,000 |
| Systematic and Environmental Biology | 581,000 | 37,000 | 618,000 |
| Astrophysics and Earth Sciences | 633,000 | 7,000 | 640,000 |
| Museum Programs | <u>135,000</u> | <u>5,000</u> | <u>140,000</u> |
| TOTAL FOR RESEARCH | \$3,439,000 | \$98,000 | \$3,537,000 |
| SFCP Grant Administration ^{/1} | | | 20,000 |
| NSF Science Information Program-- Translations | | | <u>150,000</u> |
| TOTAL | | | \$3,707,000 |

Estimated Obligations by Country
(dollar equivalents)

| | <u>Grant Administration and Agency Transfers</u> | <u>Research Projects</u> | <u>Research Development</u> | <u>Total</u> |
|----------|--|------------------------------|---------------------------------|----------------|
| Burma | \$ 0 | \$ 0 | \$ 5,000 | \$ 5,000 |
| Egypt | 0 | 1,646,000 | 30,000 | 1,676,000 |
| Guinea | 0 | 15,000 | 3,000 | 18,000 |
| India | 170,000 | 1,118,000 | 40,000 | 1,328,000 |
| Pakistan | <u>0</u> | <u>660,000</u> | <u>20,000</u> | <u>680,000</u> |
| TOTAL | \$170,000 | \$3,439,000 | \$98,000 | \$3,707,000 |

^{/1} Includes transfers to the State Department for "Shared Administrative Expenses."

MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

STATUS OF FUNDS
(dollar equivalents)

| | FY 1977 <u>Actual</u> | FY 1978 <u>Estimated</u> | FY 1979 <u>Estimated</u> |
|---|--------------------------|-----------------------------|-----------------------------|
| Unobligated Balance, Start of year | \$ 28,000 | \$ 282,000 | \$ 113,000 |
| Appropriation | 3,481,000 | 4,000,000 | 3,700,000 |
| Recovery of Prior Years' Obligations | 559,000 | 100,000 | 100,000 |
| Unobligated Balance, End of year | <u>-282,000</u> | <u>-113,000</u> | <u>-206,000</u> |
| TOTAL OBLIGATIONS | \$3,786,000 | \$4,269,000 | \$3,707,000 |

SMITHSONIAN INSTITUTION
MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)
Fiscal Year 1977

List of Grants

ARCHAEOLOGY AND RELATED DISCIPLINES

The study of archaeology, anthropology, and related fields such as ethnology, is the study of changes in man's condition brought about by his environment, by cultural factors including man's own inventiveness, and limited by his biology. Societies such as our own that are undergoing rapid change are subject to increasing pressures to accomodate new factors. These societies must look to studies of the long history of man as well as to studies of today's condition to find answers to such questions as:

- a) How have societies responded to similar pressures in the past?
- b) What are those elements in our condition that are biological imperatives or are so culturally interdependent that we dare not change them? For example, is the family unit essential to the survival of our civilization?
- c) What are the current options available to today's societies?

The urgency to understand the forces demanding change in human societies has caused scholars to study man and his communities, past and present, for a better grasp of the process of social change. Modern archaeology and anthropology seek to understand such change.

Projects of United States institutions contributing to understanding man's condition, which received support in FY 1977, are listed below.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
|--|---|-----------------------------------|-------------------------|
| EGYPT | | | |
| 1. FR6-50002 - Amend. 5 FC70549800 and Amend. 1&2 | American Research Center in Egypt, Princeton, NJ | P. Walker | \$491,294 ^{1/} |

The American Research Center in Egypt (ARCE) is a consortium of 22 United States universities and museums and over 600 individual scholars devoted to research and teaching about ancient and modern Egypt. The ARCE is an unique national resource because it is the principal source of money on an annual basis in the United States for the advancement of knowledge and understanding of ancient and Islamic Egypt as well as the training in Egypt of area specialists. Moreover, the ARCE has served the U.S. national interest by sustaining active scholarly collaboration between the U.S. and Egypt during periods of political stress when other contacts have been interrupted. SFCP support of the ARCE has totalled \$3,477,411 equivalent in Egyptian pounds over a twelve year period for the support of 39 research projects. Projects receiving new funds in FY 1977 are listed below.

^{1/} Total for following parenthetical amounts (items 1a through 1L)

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
|---|---|-----------------------------------|----------------|
| a. | American Museum of Natural History, NY | W. Fairservis | (\$32,011) |
| Excavation continues at Hierakonpolis, a major urban complex continually occupied from 4500 to 1500 B.C. The most sophisticated scientific techniques are being employed in the examination of this little studied period of Egyptian history. | | | |
| b. | American Research Center in Egypt, Princeton, NJ | P. Walker | (\$121,130) |
| Smithsonian grants to ARCE have supported the Cairo Center which serves as an American scholarly presence in Egypt by maintaining a reference library and by sponsoring lectures and symposia which involve the scholarly community in Egypt. The Cairo Center also provides administrative support for its members' research by obtaining research and import and export permits, housing, supplies and personnel, and by keeping project financial records and publishing research results. | | | |
| c. | American Research Center in Egypt, Princeton, NJ | P. Walker | (\$59,700) |
| Support was given to the ARCE Fellowship Program for research in ancient and modern Islamic thought, history, and art. ARCE fellows receiving support during FY 1977 are listed below. | | | |
| | Harvard U. | K. Lacey | |
| | Harvard U. | J. Ragep | |
| | Harvard U. | M. Ryan | |
| | Harvard U. | L. Shumaker | |
| | U. of Arizona | S. Jadon | |
| | U. of Connecticut | J. Keith | |
| | U. of Virginia | F. Douglas | |
| | Utah State U. | M. Dunn | |
| | Yale U. | A. Spalinger | |
| d. | American Research Center in Egypt, Princeton, NJ | P. Walker | (\$18,324) |
| The study, development, and analysis of a restoration plan for a major Mamluk palace will be a model for experimental art historical restoration methodology in Egypt. It is hoped that this restoration will serve as a catalyst for other restoration projects and the revitalization of medieval Cairo. | | | |
| e. | Brooklyn Museum New York, NY | B. Bothmer | (\$15,000) |
| American museum professionals are preparing a catalog on the art objects in the new Luxor Museum of Ancient Egyptian Art as well as designing and writing label information. All data will be provided in English, French and Arabic. | | | |

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
|---|------------------------------------|-----------------------------------|----------------|
| f. | Brooklyn Museum New York, NY | B. Bothmer | (\$13,713) |
| The preparation of this catalog documents 150 previously unpublished ancient Egyptian statues found at Karnak. These statues were found early in this century by Georges Legrain. | | | |
| g. | New York U. New York, NY | D. Hansen | (\$42,949) |
| This excavation of the stratified ancient port of Mendes in the Nile River delta involves Greek and Roman settlements dating from 300 B.C. to the early Christian era. This site is providing greater insights into the life of an ancient Mediterranean port town. | | | |
| h. | Smithsonian Institution | O. Gingerich and D. King | (\$58,500) |
| The Smithsonian and the Egyptian National Library are preparing a critical catalogue of the Library's medieval scientific manuscripts and analyzing scientific works of particular importance in astronomy and mathematics. Several of these documents suggest that some of the geometrical mechanisms employed by Copernicus were developed 250 years earlier in the Islamic world. | | | |
| i. | U. of California, Berkeley | K. Weeks | (\$19,073) |
| The preparation of a detailed map of archaeological remains in the Theban necropolis on the West Bank at Luxor will provide a very valuable research tool for Egyptologists. | | | |
| j. | U. of California at Los Angeles | S. Vryonis | (\$41,846) |
| English translations of recent literary works evolved in Egypt under the impact of modern Western thought are being made available to the English reading public for the first time. One volume on the short story and another on drama have been published; a third, on the literature of ideas, is being translated. These complete texts of current Arab literature will provide a unique opportunity for insight into this important culture. | | | |
| k. | U. of Chicago | C. Van Siclen | (\$54,997) |
| A 50 year project has carefully preserved through color reproductions the rich history of ancient Egypt carved and painted on the surfaces of its temples and monuments. The work is being carried out at Luxor before the monuments there are completely eroded and undecipherable. | | | |
| l. | U. of Maryland | C. Butterworth | (\$14,051) |
| Averroes or Ibn-Rushd, as he was called in the Arab world, was one of the most important students of Aristotle. His commentaries on Aristotle's work are unequalled. The goal of this project is to edit and publish Arabic manuscripts of Averroes' Middle Commentaries on Aristotle's <u>Organon</u> . | | | |

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| 2. FC70578600 | American Research Center in Egypt, Princeton, NJ | P. Walker | \$1,000,000 |

A contribution was made through the ARCE to the international campaign to help save the monuments at Philae which include early Christian temples as well as Egyptian and Roman treasures that have been inundated by waters impounded between the two dams at Aswan. These temples are being dismantled for transfer to a nearby island which is above the water level. This is the final phase of the campaign which has already rescued Abu Simbel and certain Nubian monuments.

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| 3. FC70769500 | Brown U. | R. Caminos | \$34,908 |
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An epigraphic and architectural survey of all the pharaonic and pre-pharaonic remains at Gebel es-Silsilah, Upper Egypt, will complete a twelve-year study of the site which has exceptional significance in the history and religion of ancient Egypt.

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| 4. FC70945800 | City University of New York H.E. Lehman College | L. Saunders | \$15,885 |
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An anthropological re-study of a village in the Egyptian Delta will analyze cultural change since 1962 and determine long-term socio-economic processes and trends.

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| 5. RD-IFT00180 | Smithsonian Institution | E. Atil | \$3,002 |
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A survey of Islamic art of the Mamluk period (1250 to 1517 A.D.), particularly the architectural monuments of Cairo, was undertaken as a preliminary step in the development of an exhibition and documentary film as well as a scholarly examination of the material (research development).

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| 6. RF-IFT00136, -137 | Smithsonian Institution | G. Van Beek | \$6,486 |
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A study of ancient and modern pitched mud brick vaultings in Egypt, with special emphasis on the construction techniques involved, is part of a larger investigation into the origin and development of a unique style of architectural construction found throughout the Near East.

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| 7. FC70174900 | Southern Methodist U. | F. Wendorf | \$56,579 |
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Geological and archeological studies of the Egyptian desert are establishing a chronology of environmental changes and the appearance and development of early man. This study of the geological past has resulted in discovery of a great quantity of water available at shallow depth, which seems to be a useful source of water for modern agriculture.

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| 8. RD-IFT00096, -097 | U. of Chicago | J. Johnson | \$3,628 |
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The feasibility of a thorough study of the Red Sea port town of Qusair and its relationship with overland and maritime trade throughout history was examined (research development).

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| 9. RF-IFT00062 | U. of Chicago | L. Zabkar | \$7,923 |

Salvage excavation of the foundations of the last temple to be dismantled at Philae was undertaken. The site has since been inundated by Nile River waters and the protective coffer dam is being removed.

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| 10. FR6-50007 - Amend. 1 FC70662900 | Washington State U. | F. Hassan | \$19,000 |
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Excavations of prehistoric sites in the Siwa Oasis region of the Western desert will contribute to the reconstruction of early agricultural life in an area where cultural forms of the Egyptian desert and of the Nile Valley overlapped in a period likely to have witnessed the climatic changes which led to the present arid conditions of North Africa.

INDIA

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| 11. FC70634700 | American Institute of Indian Studies Chicago, IL | E. Dimock, Jr. | \$312,111 |
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The American Institute of Indian Studies (AIIS) was founded in 1961 and today has a membership of 29 United States institutions. The AIIS is a unique national resource because it is the principal source of money on an annual basis supporting in the United States the advancement of knowledge and understanding of India as well as the training in India of area specialists. Moreover, the AIIS has served the U.S. national interest by sustaining active scholarly collaboration between the U.S. and India during periods of political stress when other contacts have been interrupted. Disciplines sponsored by the AIIS are increasing from the original concentration on social sciences and the humanities to include the natural sciences as well. Smithsonian support of the AIIS has totalled \$3,760,637 equivalent in Indian rupees over a twelve year period.

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| a. | American Institute of Indian Studies Chicago, IL | E. Dimock, Jr. | (\$90,000) |
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The AIIS provides support for its fellows and for a major language program from a headquarters in New Delhi and small offices in Bombay, Calcutta, Madras and Poona.

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| b. | American Institute of Indian Studies Chicago, IL | E. Dimock, Jr. | (\$222,111) |
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The principal activity of the AIIS has been the appointment of fellows. The SFPC currently provides most of the funds for this fellowship program. AIIS fellows receiving support during FY1977 are listed below.

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| American Museum of Natural History | Ruth and Stanley Freed |
| Amherst College | Susan Lewandowski |

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| | Brandeis U. | Marvin Davis | |
| | Brooklyn College | Leonard Gordon | |
| | Columbia U. | Barbara S. Miller | |
| | Cornell U. | Carol Breckenridge | |
| | Cornell U. | Mary Katzenstein | |
| | Cornell U. | Gerald Kelley | |
| | Oakland U. | Richard Tucker | |
| | Temple U. | Manak Gupta | |
| | U. of Arizona | Robert Varady | |
| | U. of California Berkeley | Ann Pescatello | |
| | U. of California Berkeley | Bonnie Wade | |
| | U. of California Berkeley | Stuart Blackburn | |
| | U. of California Berkeley | Mary-Ann Lutzker | |
| | U. of Chicago | Norman Cutler | |
| | U. of Chicago | Daniel Ehnbon | |
| | U. of Chicago | Cynthia Livermore | |
| | U. of Chicago | Rekha Morris | |
| | U. of Chicago | Gloria Raheja | |
| | U. of Chicago | Marsha Tajima | |
| | U. of Chicago | Douglas Twells | |
| | U. of Michigan | Vishakha Walker | |
| | U. of Minnesota | Frederick Asher | |
| | U. of Minnesota | George Hoynacki | |
| | U. of Minnesota | Rocky Miranda | |

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| | U. of Minnesota | Ram Dayal Munda | |
| | U. of Missouri | William Noble | |
| | U. of Pennsylvania | Arjun Appadurai | |
| | U. of Pennsylvania | Helen Baig | |
| | U. of Pennsylvania | Wilfred Malenbaum | |
| | U. of Pennsylvania | James Moore | |
| | U. of Pennsylvania | Eliot Stern | |
| | U. of Pennsylvania | Gregory Possehl | |
| | U. of Pennsylvania | Lise Vail | |
| | U. of Pennsylvania | Richard Young | |
| | U. of Texas | Kenneth Jackson | |
| | U. of Virginia | Richard Barnett | |
| | U. of Virginia | Murray Milner | |
| | U. of Washington | Theodore Adams | |
| | U. of Washington | Frank Conlon | |
| | U. of Wisconsin | Edward Bastian | |
| | U. of Wisconsin | Robert Frykenberg | |
| | U. of Wisconsin | Robert and Beatrice Miller | |
| 12. FC70564900 | American Institute of Indian Studies Chicago, IL | F. Asher | \$92,650 |

The Center for Art and Archaeology at Benares, India, is a vital research facility serving scholars of ancient and modern India from all over the world. The Center was established to apply rigorous scholarly standards to the massive job of photographing and indexing the art collections and the temples and monuments of India which abound in every region of the sub-continent. The archive of more than 30,000 photographs continues to grow as important projects like photographing collections in the India Museum in Calcutta are undertaken.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| 13. RD-IFT00284 | American Institute of Indian Studies Chicago, IL | J. Gutman | \$2,528 |
| Examination of 19th and early 20th century photographs in India will enable scholars to reconstruct the social history of the period (research development). | | | |
| 14. FC70669700 and Amend. 1 | Asia Society, NY, agent for the American Panel of the Indo-U.S. Subcommission on Education and Culture | D. Dillon | \$60,000 |

The Indo-American Fellowship Program, established in late 1975, was created to widen the circle of scholarly/professional contacts and increase the extent of collaboration between the U.S. and India. Fellowships are granted for research in India, primarily at the post-doctoral or equivalent level with substantial collaboration with Indian colleagues. The fellows who received support in FY 1977 are:

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| | Columbia U. | C. Worswick | |
| | San Diego State U. | E. Henry | |
| | U. of California Los Angeles | M. Helstein | |
| 15. RF-IFT00112 | Smithsonian Institution | R. Organ | \$1,900 |
| Travel support was provided for a Baroda University scholar to participate in the Smithsonian/National Bureau of Standards Symposium, "Sources of Tin." | | | |
| 16. RD-IFT00201,-150 | Smithsonian Institution | E. Sorenson | \$5,389 |

As part of a comprehensive effort to document changing and vanishing cultures using newly developed anthropological filming techniques, locations are being selected for a study of the impact of Indian acculturative pressures on the family organization of the nomadic Pashtoon people of Afghanistan (research development).

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| 17. RD-IFT00075,-076, -221 | U. of Wisconsin Madison, WI | J. Elder | \$11,237 |
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Arrangements were made to make six documentary films on selected aspects of contemporary South Asian civilizations (research development).

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| PAKISTAN | | | |
| 18. RD-IFTU0276 | Smithsonian Institution | E. Sorenson | \$2,242 |

The Burusho people of Hunza in Pakistan will be studied and filmed using new anthropological filming techniques. These people pursue an ancient way of life which will be altered by a modern road through their area linking Pakistan and the People's Republic of China. These people recently gained world attention when it was determined that they had the lowest recorded incidence of cancer in the world (research development).

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| 19. RF-IFT00195,-220, -234, -235 | Smithsonian Institution | W. Trousdale | \$22,314 |
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Examination of the techniques of early mining and smelting in Pakistan is expected to determine the relationship of smelting sites in Afghanistan with early metallurgy in the Indus Valley and Baluchistan.

POLAND

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| 20. FC70246900 | U. of Louisville | S. Jernigan | \$55,434 |
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A study combining archaeological and art history approaches is providing insight into the history and cultural development of Poland in the medieval period and its relationship with Central and Western Europe at that time.

TUNISIA

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| 21. FC70496500 | American Schools of Oriental Research, Cambridge, MA | J. Pedley and F. Cross | \$279,500 |
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The American Schools of Oriental Research (ASOR) is made up of 135 United States institutions and three scholarly associations. The ASOR has provided, since its incorporation in 1900, most of the field training opportunities in the archeology of the Bible and of the Near and Middle East in general, which have been available to United States scholars and clergy. Four generations of Americans have felt the impact of ASOR-sponsored research as it enriched the accounts of the origins of western civilization and of the Judeo-Christian tradition presented at every level of secular and religious education in the United States. Despite the constant political turmoil which has afflicted the Near East in recent years, the ASOR has sustained uninterrupted collaboration with the scholars of the area by maintaining a year-round American scholarly presence in Jordan, Iraq, and Cyprus as well as in Israel and Tunisia. Smithsonian support of the ASOR has totalled \$1,086,500 equivalent in Israeli pounds and Tunisian dinars through FY 1977 to support seven archeological excavations in Israel and two in Tunisia over an eleven year period.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| ASOR is now engaged in the first modern archeological excavations at Carthage as part of a combined effort to reconstruct the history of the successive occupations of ancient Carthage (the Punic, or original inhabitants; the Roman conquest; the Vandal conquest; Byzantine; and finally Arab occupation) in an effort to salvage as much as possible of this important period of ancient history before the archeological remains are destroyed by the encroachment of the modern city of Carthage. | | | |
| 22. FC70549700 | Dumbarton Oaks Center for Byzantine Studies Washington, DC | M. Alexander | \$103,500 |

A descriptive and photographic inventory of the tile and stone mosaics from the Roman colonial period in Tunisia, resulting in the publication of scholarly reference material, is making available a wealth of data on the social, religious and other cultural and artistic aspects of life in Roman times in Tunisia.

For much of our history as a nation, we have regarded technology as the key to the betterment of the human condition. It is a concept that once stood virtually unquestioned, and which has profoundly influenced changing cultural patterns around the world. Today, however, it is becoming increasingly obvious that technology exacts its price, one that is multiplied by new levels of population. Biological scientists who once concerned themselves with laying the brick-work of the edifice of human knowledge now find themselves with a new responsibility. We now know that it is imperative to establish norms for our environmental systems, to monitor changes, and to predict the consequences of social policies on an Earth that has grown less forgiving of our abuses. American scientists are again the leaders in international research efforts in these new fields. Through the long-term collaborative relationships between American and foreign institutions and scholars, research conducted under the Smithsonian Foreign Currency Program serves as a foundation for the intense efforts that will be required to solve the problems of biological science that transcend national boundaries.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| BURMA | | | |
| 23. RD-IFT00148, -147 | U. of California Berkeley | D. Savage | \$1,000 |

A research development trip was made to seek approval of the Burmese government for collaborative investigations of fossil remains of man's early primate ancestors in Burma.

EGYPT

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| 24. FC70869600 | Duke U. | E. Simons | \$28,154 |
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The Fayum Province of Egypt is the only accessible site in Africa for recovery of land vertebrates dating to the Oligocene epoch some 35,000,000 years ago. Quarrying of this site promises to expand our knowledge of the early primate ancestors of man and related primates and to improve our understanding of their ecological setting.

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| 25. FC70928900 RD-IFT00049,-050 (research development) | Texas Tech U. | J. Goodin and D. Northington | \$30,240 |
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A study of the ecology of arid and semi-arid halophytes (salt-tolerant plants) which inhabit the saline regions of Egypt will demonstrate how these plants thrive under desert conditions and if they might be cultivated as a source for high-protein forage for livestock feed.

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| 26. FC70706800 | U. of Michigan | J. Burch | \$38,391 |
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Research into the freshwater snails of Africa, Genus Bulinus, is providing the basic systematic, geographic and ecological data for the eventual control of these carriers of schistosomiasis, a serious public health problem.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| 27. RD-IFT00181,-182 | U. of Pittsburgh | M. Mares | \$3,789 |

Analysis of Egyptian desert rodent ecology will seek to provide new information concerning desert adaptation, population regulation, and behavioral mechanisms in desert habitats (research development).

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| 28. RF-IFT00014 | Yale U. | G. Meyer | \$116 |
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The skull of a 28 million year old ape, Aegyptopithecus zeuxis, the oldest ape skull yet uncovered, was found in the Fayum region of Egypt in 1967. This ape is thought to be directly ancestral to man. After ten years of study at Yale University, the skull was returned to Egypt.

INDIA

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| 29. RD-IFT00194 | Smithsonian Institution | E. Ayensu | \$139 |
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As part of a worldwide effort to identify endangered plant species, a project is developing in India to study endangered plants of known or potential economic value (research development).

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| 30. FC70117000 | Smithsonian Institution | R. Higgins and G. Saunders | \$19,558 |
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Study of the interdependence of living organisms in some tropical freshwater Indian lakes is developing principles of management of biological productivity in these lakes and comparing results with similar studies of temperate lakes in North America, contributing to understanding the processes of life in all bodies of freshwater.

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| 31. RF-IFT00051 | Smithsonian Institution | K. Krombein | \$2,812 |
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An examination of entomological specimens of the Zoological Survey of India is providing comparative material for related studies in Sri Lanka.

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| 32. RD-IFT00230 | Smithsonian Institution | T. Reed | \$3,334 |
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Exchanges are being developed between the National Zoological Park in Washington, D.C. and the Delhi Zoo in general zoo management and captivity breeding (research development).

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| 33. RD-IFT00003,-145, -146 | U. of Michigan | J. Burch | \$1,013 |
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Aquatic and sub-aquatic mollusks (particularly snails) of India will be studied to determine evolutionary trends and links to other mollusk families around the world (research development).

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| 34. RF-IFT00059 | U. of Washington | D. Farner | \$596 |
| RF-IFT00057 | Seattle | R. Hazelwood | \$356 |
| RF-IFT00058 | | J. Wingfield | \$2,608 |

Three Americans participated in the First International Symposium on Avian Endocrinology in Calcutta to discuss new research techniques and new research designs with other leading investigators in this field.

PAKISTAN

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| 35. RF-IFT00063,-185, -186, -187, -280 | Smithsonian Institution | F.R. Fosberg | \$12,050 |
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Scientists from all over the world are contributing to the revision of Trimen's Handbook to the Flora of Ceylon, the handbook which has provided the basic nomenclature for tropical flora. In 1977, five scholars visited the National Herbarium at Rawalpindi to compare herbarium specimens with those collected in the field.

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| 36. RF-IFT00077, -074 | Smithsonian Institution | R. Grant | \$4,865 |
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The nature and timing of the mass extinction of marine faunas of the late Paleozoic and early Mesozoic era of Pakistan are being investigated by a team of scholars from Pakistan and the United States.

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| 37. RD-IFT00232 | Smithsonian Institution | P. Spangler | \$3,846 |
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Biosystematic investigation of the insects of Pakistan will establish the roles of these insects in their ecosystems and provide information that could be of medical importance (research development).

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| 38. FC70760400 | U. of Michigan | P. Gingerich | \$11,830 |
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A search for Paleocene and Eocene (55-65 million year old) fossil mammals in Pakistan will substantially contribute to our knowledge of the evolution of mammals and their geographic distribution.

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| 39. FR4-60116- Amend. 2 & 3 | Yale U. | D. Pilbeam | \$24,016 |
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In a search for fossils of small and large animals in Pakistan, particularly primates dating from the time of man's earliest development, a collaborative effort between Yale University and the Geological Survey of Pakistan is striving toward a better understanding of the evolution of man.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| POLAND | | | |
| 40. FC70239000 | Academy of Natural Science Philadelphia, PA | T. Uzzell | \$49,950 |

For a number of years American and Polish geneticists have been studying the Rana esculenta, a complex of European frogs that exhibit marked patterns of variability in the passing of genetic material to offspring, producing both genetically stable and unstable species. This research is directed toward both understanding the mechanism of heredity and toward development of techniques of genetic research.

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| 41. FC70249300 | Smithsonian Institution | T. Erwin | \$4,000 |
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A comprehensive study of ground beetle faunas at lowland forest areas in Panama and Brazil has been expanded to include a primeval forest in Poland. This site, with the only accessible primeval fauna in the Old World, provides a unique baseline for comparison to secondary faunas of the New World.

TUNISIA

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| 42. FR6-50006- Amend. 1 FC70663800 and Amend. 1 | Utah State U. | F. Wagner | \$360,418 |
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A comprehensive study of the lands in Tunisia bordering the Sahara desert and their inhabitants, including man, is uncovering the natural and agricultural processes which are causing the desert to expand, reducing productive agricultural land. This study will help to develop land use plans to assist in reversing the "desertization" process.

The study of astrophysics and earth sciences is the study of man's available energy and mineral resources. Studies of the stars and their origins reveal much about the origin, composition, behavior and fate of the Earth. The forces governing the stars are the same as those governing the star which is our Sun. The Earth was born of solar minerals, and the Sun remains the source of all energy, fossil or otherwise, available to man today. Uranium, for example, which provides the fuel for atomic power plants, is present in the Sun as well as in the Earth. Coal and oil are fossil remains of plants and animals which once relied on sunshine for life, just as all life does today.

Studies, like those listed below, which received Smithsonian Foreign Currency Program support in FY 1977 are contributing to knowledge essential to meet man's future energy and mineral needs, to understand and predict such natural phenomena as earthquakes, and to foster space age developments. Such projects help host nations, particularly the developing nations, improve their scientific output while providing United States institutions with collaborators, facilities or field research opportunities essential to the conduct of studies, judged most likely to advance man's knowledge of his available energy and mineral resources.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| EGYPT | | | |
| 43. FC70225900 | Smithsonian Astrophysical Observatory, Cambridge, MA | M. Pearlman | \$135,781 |
| RD-IFT00279 (research development) | | | |
| The operation of an Egyptian Satellite tracking facility at Helwan Observatory adds another link in the Smithsonian Astrophysical Observatory's global tracking network which supports studies of the earth's motion and magnetism and of the upper atmosphere. | | | |
| 44. RF-IFT00138 | Smithsonian Institution | F. El-Baz | \$1,235 |
| Data from surface surveys in the Western Desert of Egypt is being compared with information from satellite photographs to provide a description of desert erosion and sand movement for use in efforts to reverse nature's "desertization" process. | | | |
| 45. RD-IFT00225 | Smithsonian Institution | D. Stanley | \$2,112 |
| The Nile River has historically deposited large volumes of rich sediment on its bank and in the Mediterranean. The construction of the Aswan Dam has almost eliminated these deposits. A cooperative oceanographic study will seek to ascertain the effect of this man made environmental change on the Mediterranean Sea floor at the mouth of the Nile (research development). | | | |
| 46. RF-IFT00013, -012 | U. of Pennsylvania | H. Faul | \$9,703 |

Studies of the geology and time sequences of the "alkaline ring-dike" formations, which occur in the eastern desert of Egypt shed new light on the fundamental earth processes associated with the birth of the oceans and develop guides for mineral exploration.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
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| 47. FC70827000 | U. of Pennsylvania | R. Weeks | \$50,382 |

Laboratory analysis of the chemical and physical properties of desert silica glass is expected to determine the source material and mode of formation of this naturally occurring glass of unknown origin, similar to tektites which are extraterrestrial in origin.

INDIA

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| 48. RF-IFT00001 RD-IFT00078 (research development) | Smithsonian Astrophysical Observatory, Cambridge, MA | M. Pearlman | \$7,265 |
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The Smithsonian Astrophysical Observing Station at the Uttar Pradesh State Observatory, Naini Tal, India, is the only satellite tracking station in the Smithsonian Astrophysical Observatory network located on the Asian land mass. This station makes possible observation of man-made satellites passing over South Asia. It employs tracking cameras and contributes to studies devoted to an understanding of the movement of the continents, the shape of the Earth, the nature of its upper atmosphere, and how these are influenced by the Sun and the other planets.

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| 49. RF-IFT00091,-105, -236 | Smithsonian Institution | K. Fredriksson | \$10,245 |
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Deep core-drillings of the Lonar craters in central India have demonstrated that they were caused by the impact of a major meteor and that they are very much like impact craters on the moon. Field studies have produced remarkable new samples of impact-generated rocks, similar to materials brought back from the moon, and have revealed new problems related to their origin and impact cratering in general. This research is being supported by the Geological Survey of India, and the SFCP is providing travel support for American project participants.

PAKISTAN

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| 50. RD-IFT00203 | U. of Wisconsin Madison | W. Pennington | \$2,829 |
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Observation by teams from five countries of seismic waves from fired explosions and naturally occurring earthquakes in the Himalayas will achieve better understanding of the structure and occurrence of the Himalayan range (research development).

POLAND

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| 51. FC70249200 | Ohio State U. | R. Wing | \$7,596 |
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Red giant stars are relatively cool stars that block the passage of radiation through the atmosphere. Calibration of their spectral energy distribution, the measurement of the brightness of the star throughout the spectrum, will provide necessary baseline data for all further study of this large group of stars.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
|------------------------------|--------------------|-----------------------------------|----------------|
| 52. FR6-50001 - Amend. 1 | U. of Chicago | D. Schramm | \$50,000 |

This research employs computers to calculate the chemical evolutions of the cores of stars comparable to the Earth's Sun.

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|----------------|----------------|------------------|----------|
| 53. FC70244000 | U. of Colorado | J. Van Couvering | \$22,245 |
|----------------|----------------|------------------|----------|

Study of an unusual sequence of geologic strata in South Poland is establishing a dated and zoned reference sequence for Late Cretaceous to Late Miocene times (135,000,000 to 25,000,000 years ago) in the Carpathians. The resulting chronology will make possible the reconstruction of many aspects of the geological history of Europe and Western Asia.

MUSEUM PROGRAMS

The scope of museum activities is growing and changing. The traditional museum role has been the care and preservation of scientific specimens and cultural objects for study and reevaluation as new techniques and data become available. Today museums also have a growing role in the transmission of man's cultural heritage to future generations, a role belonging traditionally to universities. They also play a growing role in communication between present-day cultures, drawing together peoples of different lands when language barriers prevent exchange of basic information. Museums are now making more use of their skilled personnel and their collections for popular education. Increasingly, museums are broadening the interpretation of museum collections to include living cultural traditions such as crafts and the performing arts.

Projects like those listed below, which received Smithsonian Foreign Currency Program support in FY1977, support both the traditional and the newer roles of museums. These projects respond to the needs of the museum profession which are not met within the framework of basic research in the natural sciences and cultural history which received Smithsonian Foreign Currency Program support separately.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
|------------------------------|-------------------------|-----------------------------------|----------------|
| EGYPT | | | |
| 54. RD-IFT00111 | Smithsonian Institution | P. Perrot | \$492 |

Supplemental funds were provided for the travel of this Smithsonian museum expert from Egypt to Saudi Arabia at the invitation of the University of Riyadh to advise on the plans to start a Natural History Museum (research development).

INDIA

| | | | |
|-----------------|---------------------------------------|------------|---------|
| 55. RF-IFT00079 | Carnegie Museum of Natural History | J. Swauger | \$2,091 |
|-----------------|---------------------------------------|------------|---------|

A seminar on the preparation of plant materials for natural history displays was given for personnel of the National Museum of Natural History of India in a continuing exchange of museum professionals between that museum and the Carnegie Museum of Natural History in Pittsburgh, Pennsylvania.

| | | | |
|--|------------------------|---------------|-----------|
| 56. FC70763500 & Amend.1 RF-IFT00115, -179 RD-IFT00002,-003, -004 (research development) | The Franklin Institute | J. Harrington | \$143,042 |
|--|------------------------|---------------|-----------|

The development, preparation and presentation in six Indian cities of an exhibition illustrating the historical development of American technology is one of the first projects in the museum program of the Indo-U.S. Subcommission on Education and Culture, created in 1974 to further cultural relations between the two countries.

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
|------------------------------|-------------------------|-----------------------------------|----------------|
| 57. RF-IFT00224 | Smithsonian Institution | J. Billington | \$7,408 |

Travel support from India to the U.S. was provided for a Woodrow Wilson International Center for Scholars fellow engaged in an historical study of the development of Indo-U.S. relations.

| | | | |
|-----------------|-------------------------|---------|------|
| 58. RF-IFT00081 | Smithsonian Institution | B. Finn | \$85 |
|-----------------|-------------------------|---------|------|

In a continuing exchange on the history of science and technology, a Smithsonian historian of electricity visited Indian science museums.

POLAND

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|----------------|--|------------------|----------|
| 59. FC70239300 | The Maryland Institute College of Art | J. Czestochowski | \$29,410 |
|----------------|--|------------------|----------|

The preparation of an exhibition and its scholarly catalogue of Polish posters will document the historical development of the poster as an art form and its place in Polish culture, society, and economy. The exhibition will tour the United States for two years.

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|--------------------------|--|-----------|-------|
| 60. FR5-46227 - Amend. 2 | Smithsonian Institution National Trust for Historic Preservation | H. Gorska | \$500 |
|--------------------------|--|-----------|-------|

Documentation of Polish methods of conservation and restoration of historic buildings will contribute to adaptation of these techniques to American needs.

| | | | |
|----------------|-------------------------|----------------------------|----------|
| 61. FC70154900 | Smithsonian Institution | T. Reed and K. Loveland | \$41,017 |
|----------------|-------------------------|----------------------------|----------|

Animated films prepared in Poland that provide visitors to the National Zoo in Washington with information on the evolutionary origins and behavior of lions, tigers, and other large cats.

TUNISIA

| | | | |
|-----------------|-------------------------|-------------|---------|
| 62. RD-IFT00088 | Smithsonian Institution | E. Thompson | \$2,415 |
|-----------------|-------------------------|-------------|---------|

Inspection of Smithsonian Foreign Currency Program sponsored projects in Tunisia has resulted in the preparation of articles on Carthage excavations and on the desert biome research (research development).

SFCP GRANTS ADMINISTRATION

| <u>Obligation Number</u> | <u>Institution</u> | <u>Principal Investigator</u> | <u>\$ Eqv.</u> |
|-------------------------------------|-------------------------|-----------------------------------|----------------|
| 63. 3300-61-01 (Rev.) 3300-71-01 | Smithsonian Institution | | \$8,837 |

Indian rupees were transferred to the State Department for Shared Administrative Expenses which are the costs incurred by the State Department in providing administrative support to Foreign Currency Program grantees in the excess currency countries.

| | | |
|----------------------------------|-------------------------|----------|
| FC70261900 | Smithsonian Institution | \$60,887 |
| GA-IFT00177,- 178, -250, -275 | | |

These funds supported inspection and audit of research projects and liaison with host country governments and institutions.

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